



SINGAPORE CIVIL DEFENCE FORCE FIRE, AMBULANCE AND ENFORCEMENT STATISTICS

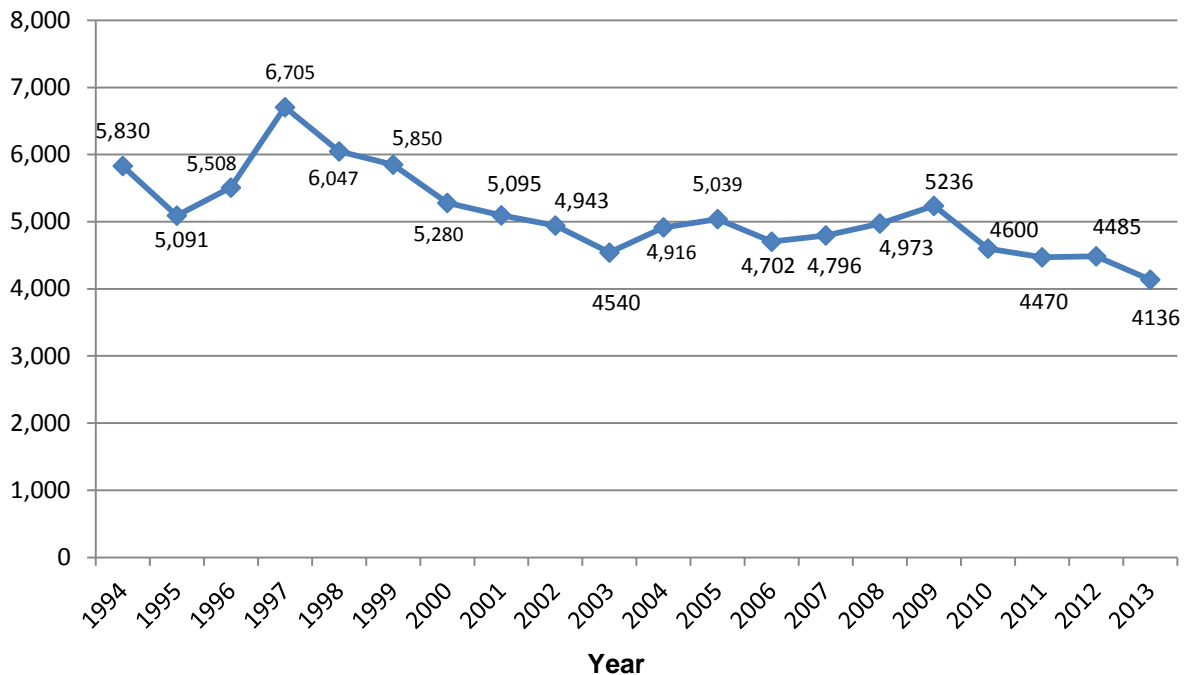
TOPIC A

FIRE INCIDENT STATISTICS (JANUARY – DECEMBER 2013)

FIRE INCIDENTS AT ALL TIME LOW

SCDF responded to a total of 4,136 fires between January and December 2013, a decrease of 349 cases (7.8%) from the 4,485 fires in 2012. This is the lowest annual figure recorded in 20 years (see **Graph A1 below**).

No of Fire Incidents



Graph A1: Year-to-Year Comparison of Fire Incidents (1994 – 2013)

NO CASUALTIES WITH BURN INJURIES IN 96.5% OF ALL FIRES

2. Every type of premises has its inherent fire risk which takes into consideration factors such as containment of fire spread, occupancy load, presence of flammables and/or combustibles and the impact of the fire on lives and property. SCDF's contingency plans for response to fire incidents are largely based on the fire risk level.

3. SCDF classifies all fire incidents into three broad inherent risk levels :

- **Minor Risk** - Refer to fires that can be contained and are unlikely to spread due to limited flammables and/or combustible materials; generally such fires have low risk of causing injury. Examples of such fires include fires involving rubbish chutes, rubbish collection centre and discarded rubbish in the open area.
- **Moderate Risk** - Refer to fires with the potential to escalate and spread due to the presence of some flammables and/or combustible materials; generally there is some risk of such fires causing injury. Examples include vehicle fires, fires in open car parks, fires within residential unit and fires at the common areas such as the corridor and lift lobby.
- **Major Risk** - Refer to fires that could escalate and spread widely because of substantial amount of flammables and/or combustible materials and incur significant damage to the premises and surrounding areas; generally such fires potentially have a high risk of causing injury. Examples include fires in shopping complexes, warehouses, factories and refineries.

4. **Table A1** below shows the breakdown of fires by type of inherent risk level. Of the 4,136 fires in 2013, 2,075 cases (50.2%) were classified under the minor risk category, 1,553 cases (37.5%) were under moderate risk and the remaining 508 cases (12.3%) were under the major risk category.

5. When the inherent risks were compared against the final outcome of the fire and its effect on lives and property, the statistics were encouraging. The classification of the fire outcomes are as follows:

- **Low Fire Outcome** – Refer to fires that are localised or confined within a compartment/room and/or resulted in no casualties with burn injuries.
- **Moderate Fire Outcome** – Refer to fires that are confined within a unit (residential/commercial or factory unit) and/or resulted in 3 or less casualties with burn injuries.
- **High Fire Outcome** – Refer to fires that involved more than one unit and/or resulted in more than 3 casualties with burn injuries.

6. Of the 4,136 fires in 2013, 3991 cases (96.5%) resulted in fires with low fire outcome and only 16 cases (0.4%) resulted in fire with high fire outcome. Of the 508 fires under the major risk category, only 7 (1.4%) of the fires resulted in fires with high fire outcomes.

7. The high percentage of low fire outcome under the moderate risk and major risk categories can be attributed to the early detection and successful mitigation of the fires by members of the public and Company Emergency Response Team (CERT) members as well as the swift and effective response by the SCDF responders.

Fire Risk Classification	Jan- Dec 2012			Jan- Dec 2013			Absolute Change	% Change
Minor	2,314			2,075			-239	↓10.3%
	Fire Outcome			Fire Outcome				
	Low	Moderate	High	Low	Moderate	High		
	2,308	5	1	2,067	7	1		
Moderate	1,617			1,553			-64	↓4.0%
	Fire Outcome			Fire Outcome				
	Low	Moderate	High	Low	Moderate	High		
	1,549	61	7	1,476	69	8		
Major	554			508			-46	↓8.3%
	Fire Outcome			Fire Outcome				
	Low	Moderate	High	Low	Moderate	High		
	499	43	12	448	53	7		
Total No of Fires	4,485			4,136			-349	↓7.8%

Table A1: Breakdown of Fires by Type of Risk and Fire Outcome

DROP IN NUMBER OF FIRES ACROSS ALL TYPES OF PREMISES

8. The breakdown of fires by types of premises is shown in **Table A2** below. Of the 4,136 fires in 2013, majority of them (2,952 incidents or 71.4%) involved residential premises. It is encouraging to note that there was a drop in the number of fires across all types of premises – residential and non-residential (commercial, industrial, social and commercial).

Type of Premises	Jan-Dec 2012	Jan-Dec 2013	Absolute Change	% Change
Residential Premises (Public & Private)	3,184	2,952	-232	↓7.3
Non-Residential Premises (Commercial, Industrial, Social & Communal)	582	533	-49	↓8.4
Non-Building Areas (e.g. vegetation, rubbish in open space, vehicles on the road)	719	651	-68	↓9.5
Total	4,485	4,136	-349	↓7.8

Table A2: Breakdown of Fires by Type of Premises

FIRES IN RESIDENTIAL PREMISES

Increase in fires at private residential premises

9. The total number of fires in residential premises saw a dip of 7.3%, from 3,184 cases in 2012 to 2,952 cases in 2013. Of the 2,952 residential fires, 159 (5.4%) cases occurred at private residential premises, as shown in **Table A3**. There was an increase of 26 cases (19.5%) as compared to 2012. Majority of the fires at private residential premises involved unattended cooking (33 cases or 20.8%), rubbish and discarded items (27 cases or 17%) as well as electrical appliances (22 cases or 13.8%). Such fires can be prevented if residents consciously observe fire safety measures and adopt good fire safety habits.

	Jan - Dec 2012	Jan - Dec 2013	Absolute Change	% Change
Public Residential (HDB)	3,051	2,793	-258	↓8.5%
Private Residential (Condominium, Studio Apartment, Detached/Semi/Terrace House, Bungalows etc)	133	159	26	↑19.5%
Total	3,184	2,952	-232	↓7.3

Table A3: Fires in Public and Private Residential Premises

Rubbish fires drop to 5-year low

10. It is encouraging to note that there was a decline in the top four types of fires in residential premises (rubbish, discarded items, unattended cooking and contents), as shown in **Table A4** below.

Fires in Residential Premises	Jan - Dec 2012	Jan - Dec 2013	Absolute Change	% Change
Rubbish (Rubbish Chute/Bin)	1,355	1,289	-66	↓4.9%
Discarded Items	707	595	-112	↓15.8%
Unattended Cooking	460	405	-55	↓12.0%
Household Contents	295	246	-49	↓16.6%
Electrical	194	204	10	↑ 5.2%

Table A4: Fires in Residential Premises (top 5 types)

11. The number of rubbish fires (rubbish chute and rubbish bin) fell by 66 cases (4.9%). In fact, rubbish fires dropped to a 5-year low in 2013 as shown in **Table A5** below. Despite the drop, such fires continue to form the largest component of residential fires. Of the 2,952 residential fires in 2013, 43.7% were rubbish fires. Such fires fall under the minor risk category as they do not pose a serious threat to residents or cause significant damage to property. Nonetheless, the resultant smoke emitted can be a source of irritation to other residents. Attending to such fires also places unnecessary strain on emergency resources.

Fires in Residential Premises	2009	2010	2011	2012	2013
Rubbish (Rubbish Chute/Bin)	1,561	1,354	1,309	1,355	1,289

Table A5: Rubbish Fires in Residential Premises over last 5 years (2009 – 2013)

Stepped-up public education efforts to reduce rubbish fires

12. SCDF will continue to work closely with its community partners to step up outreach efforts to educate the public on preventive measures against rubbish chute fires. During the 48 Emergency Preparedness (EP) Day events held annually in HDB heartlands, 3-D mock-ups of a burning refuse chute are used as an educational tool, alongside the distribution of newly produced “Refuse Chute Fire Safety Advisory” flyers and fridge magnets.

13. Since August 2013, SCDF has also intensified the Home Fire Safety Visits for clusters of HDB blocks with high occurrences of refuse chute fires. This entails working with the grassroots leaders and Community Emergency Response Teams to conduct house visits to distribute the fire safety pamphlets and reinforce the importance of good fire safety habits.

14. Most recently, fire safety advisory to prevent rubbish chute fires was broadcast through selected MediaCorp’s radio stations from January to February 2014, during the Lunar New Year period.

Fire Safety Advisories to Prevent Rubbish Fires in Residential Premises:

- a. *Completely extinguish lighted materials such as lighted cigarettes and sparklers before disposal;*
- b. *Douse charcoal embers with water before disposal; and*
- c. *Avoid throwing flammable substances like paint, oil or kerosene into rubbish chutes/bins.*

Significant drop in fires involving discarded items

15. As shown in **Table A4**, there was a significant drop in the number of fires involving discarded items at common areas such as corridors, lift lobbies, void decks and staircases by 112 cases (15.8%). This is encouraging compared to the 801 cases of fires caused by discarded items in 2010 (see **Table A6** below).

Fires in Residential Premises	2009	2010	2011	2012	2013
Discarded Items	644	801	708	707	595

Table A6: Discarded items Fires in Residential Premises over last 5 years (2009 – 2013)

16. The drop in fires involving discarded items can be attributed to greater public awareness and the concerted efforts by SCDF and its community partners, including the Town Councils, in stepping up efforts to educate the residents on the dangers of cluttered common areas. This includes lift door stickers with pictorial fire safety advisory and radio message on fire safety tips.

17. While the drop in the number of discarded items fires is encouraging, it is still an area of concern as such fires form the second biggest component of residential fires, accounting for one fifth of all residential fires in Singapore. Such fires, categorised under the moderate risk category, have the potential to be more serious in nature due to the high fire load (high volume of combustible items) present and proximity to dwellings.

18. Leaving discarded items at the common areas, especially combustible items such as furniture and newspapers, can easily fuel fires when lighted materials like cigarette butts are indiscriminately thrown onto them. Cluttered common areas can also seriously hamper fire-fighting efforts, fire evacuation and conveyance of patients during a medical emergency.

Fire Safety Advisories to Prevent Fires Involving Discarded Items in Residential Premises

- a. *Do not leave discarded items at common areas such as corridors, lift lobbies, void decks and staircases;*
- b. *Arrange with Town Councils for the removal of unwanted bulky items such as cupboards, sofas, etc; and*
- c. *Anyone who observes items being discarded at common areas should report them to the Town Council.*

Marginal Increase in electrical fires

19. As shown in **Table A4**, the number of electrical fires in 2013 increased by 10 cases (5.2%). Majority of the electrical fires were usually caused by electrical appliances/machineries that short-circuited or sockets that were overloaded with electrical wirings and appliances.

Fire Safety Advisories to Prevent Electrical Fires:

- a. *Never overload electrical outlets with electrical appliances;*
- b. *Always switch off appliances when they are not in use;*
- c. *Check the condition of wires regularly. Frayed wires or cracked cords should be replaced or repaired immediately;*
- d. *Do not run wires under carpets or mats and keep wires away from hot surfaces; and*
- e. *Use electrical plugs which carry the SAFETY Mark.*

FIRES IN NON-RESIDENTIAL PREMISES

Significant drop in fires at commercial premises

20. The number of fires in commercial premises (including offices, hotels, shopping complexes and places of public recreation/entertainment) decreased by a significant 13.4%, from 328 in 2012 to 284 in 2013, as shown in **Table A7**. The number of fires in industrial premises also fell by 2.8%, from 145 in 2012 to 141 in 2013. The decrease in the number of fires in non-residential premises can be attributed to the concerted efforts of the NFEC, building owners and fire safety managers in ensuring a high level of fire safety standard to keep their buildings safe from the threats of fires.

Description	Jan-Dec 2012	Jan-Dec 2013	Absolute Change	% Change
Fires at Commercial Premises	328	284	-44	↓13.4
Fires at Industrial Premises	145	141	-4	↓2.8
Fires at Social/Communal Premises	109	108	-1	↓0.9
Total	582	533	-49	↓8.4

Table A7: Breakdown of Fires at Non-Residential Premises

Increase in warehouse fires

21. Of the 141 fires in industrial premises, majority (33 cases or 23.4%) involved flattered factory¹ but none resulted in a high fire outcome. The number of fires at flattered factory fell by 8 cases (19.5%), from 41 cases in 2012 to 33 cases in 2013. The number of fires at terrace factory² saw a significant drop of 17 cases (34.7%), from 49 cases in 2012 to to 32 cases in 2013.

22. The number of warehouse³ fires went up by 14 cases, from 7 fires in 2012 to 21 fires in 2013. The warehouse fires which SCDF attended to in 2013 include the following :

- a. Fire at No 15 Link Road, Jurong Industrial Estate on 30 April 2013 involving three warehouses
- b. Fire at No 37, Tuas Basin Link on 21 May 2013 involving a production area of a warehouse measuring about 40m by 40m
- c. Fire at No 7, Tuas Ave 10 on 8 November 2013 involving flammable chemicals in an incineration plant The size of the fire affected area was approximately 2 football fields

23. Fires at commercial and industrial premises fall under the major risk category and have a high potential to escalate and cause injuries. Owners and management are reminded to undertake good fire safety measures as any fire outbreaks could translate into valuable losses in man-hours and property damage for the affected businesses.

National Company Emergency Response Team (CERT) Standard

24. To further enhance the preparedness level of commercial and industrial premises, the mandatory CERT scheme has been extended to designated Public and Industrial Buildings (PIB) with high numbers of occupants or large floor area such as hotels, hospitals, offices, shopping complexes and factories. Under the new scheme, some 2000 PIBs are required to have CERT.

25. Along with the extension, a national CERT standard has also been introduced. The national CERT standard will facilitate industry-wide standardisation, consistency and more importantly, an enhanced level of preparedness to manage emergencies prior to SCDF's arrival. The mandatory CERT for the PIBs and the National CERT Standard was implemented from September 2013. Companies have been given a six-month grace period from September 2013 to put together their emergency response plan and a two year grace period to train the CERTs.

¹ Flattered factory refer to high-rise multi-tenanted development with common facilities such as passenger and cargo lifts, loading and unloading bays and carparks

² Terrace factory refer to low-rise, single storey factory with common compound

³ Warehouse refer to premises where storage is the main use

26. SCDF has conducted 2 briefings for the FSMs in 2013 on the new CERT requirements. Another briefing will be conducted in February 2014. To cater to the increase in the demand for CERT training, SCDF has been working closely with the Singapore Workforce Development Agency (WDA) to accredit training providers to conduct CERT courses under the Singapore Workforce Skills Qualifications (WSQ) framework. To-date, 6 training providers have been accredited by WDA to run the CERT courses. The courses are expected to roll out in March 2014.

FIRES IN NON-BUILDING PREMISES

Significant drop in vegetation fires

27. The number of non-building fires fell by 9.5 % from 719 cases in 2012 to 651 cases in 2013. The marked decrease can be attributed to the significant drop in vegetation fires from 246 cases in 2012 to 185 cases in 2013, as shown in **Table A8** below.

Description	Jan-Dec 2012	Jan-Dec 2013	Absolute Change	% Change
Vegetation	246	185	-61	↓24.8
Rubbish (in open space)	201	187	-14	↓7.0
Vehicles	202	218	16	↑7.9
Others (bus stops, lamp post, etc)	70	61	-9	↓12.9
Total	719	651	-68	↓9.5

Table A8: Breakdown of Fires at Non-Building Places

Increase in vehicle fires

28. The number of vehicle fires increased by 16 cases (7.9%), from 202 in 2012 to 218 in 2013. Motor car fires contributed to almost half of the 218 vehicle fires last year. The top five types of vehicle fires are shown in **Table A9** below. Most of the fires occurred while the vehicles were travelling on the road and were caused by ignition sources such as overheating and electrical faults within the engine compartment. Most vehicle fires start small but can develop rapidly due to presence of flammables such as petrol, diesel and lubricants.

Description	Jan-Dec 2012	Jan-Dec 2013	Absolute Change	% Change
Motor Car	100	106	6	↑6.0
Lorry/Van/Pickup	50	59	9	↑18.0
Motorcycle/Scooter	23	32	9	↑39.1
Bus	16	9	-7	↓43.8
Heavy plant (excavator/bull-dozer/fork lift, etc)	5	7	2	↑40.0
Others (e.g. bicycle and vessels)	8	5	-3	↓37.5
Total	202	218	16	↑7.9

Table A9: Breakdown of Vehicle Fires

Public education efforts to reduce vehicle fires

29. SCDF has worked with the General Insurance Association of Singapore (GIA) to distribute pamphlets via their member companies and publish fire safety advertorials on vehicle fires in the local print media. Since October 2013, SCDF has been working with petroleum companies (Shell, ExxonMobil, Singapore Petroleum Company) to distribute pamphlets on fire safety tips against vehicle fires at selected petrol kiosks islandwide.

Fire Safety Advisories to Prevent Vehicle Fires:

- a. *Service vehicles regularly at authorized vehicle workshops. During each servicing session, do ensure that the vehicle's electrical, engine and fuel systems are checked for any defect. Outside of scheduled servicing, vehicle owners are also encouraged to conduct visual checks for any sign of oil leakage.*
- b. *Equip vehicles with a fire extinguisher so as to enable the driver to extinguish an incipient fire before it spreads. For a step-by-step guide on how to operate a fire extinguisher, download the **mySCDF** mobile application or visit the SCDF website link at www.scdf.gov.sg/content/scdf_internet/en/community-and-volunteers/publications.html.*
- c. *Vehicle owners who spot any signs of smoke emitting from their vehicles should pull over safely to the side of the road, turn off the ignition and evacuate everyone from the vehicle. If you detect a fire and have a fire extinguisher, extinguish the fire and/or call 995.*

MORE THAN HALF OF ALL FIRES IN 2013 ARE CAUSED BY THE INDISCRIMINATE DISPOSAL OF LIGHTED MATERIALS

30. As shown in **Table A10** below, 'Dropped Light' remains the highest contributing cause of fires, contributing to 54.4% or 2,250 out of the total 4,136 fires in 2013. 'Dropped Light' refers to fires that are caused by the indiscriminate disposal of lighted materials such as lighted cigarette butts that were not completely extinguished, embers from charcoal and lighted incense sticks.

Description	Jan-Dec 2012	Jan-Dec 2013	Absolute Change	% Change
Dropped Light	2,400	2,250	-150	↓6.3
Electrical Origin	541	546	5	↑0.9
Overheating	521	470	-51	↓9.8

Table A10: Causes of Fires (top 3 causes)

SIGNIFICANT DROP IN SMOKE INHALATION CASES

31. Of the 4,136 fires in 2013, 118 incidents resulted in casualties who had sustained smoke inhalation⁴ or fire injuries⁵. There were 162 smoke inhalation and fire injuries arising from the 118 incidents. There was a substantial decrease of 39 cases (36.8%) in the number of smoke inhalation cases. The number of fire injuries saw a marginal increase of 2 cases (2.2%). Please see **Table A11** for the breakdown on the number of smoke inhalation cases and injuries resulting from fire incidents.

Description	Jan-Dec 2012	Jan-Dec 2013	Absolute Change	% Change
Smoke Inhalation Cases	106	67	-39	↓36.8%
Fire Injuries	93	95	2	↑2.2%
Fire Fatalities	1	4	3	↑300%

Table A11: Smoke Inhalation Cases, Fire Injuries and Fire Fatalities

32. Of the 95 fire injuries in 2013, 54 cases (56.8%) involved casualties with 1st degree burns and 38 cases (40%) involved casualties with 2nd degree burns. The number of casualties with 3rd degree burns remained low at 3 cases (3.2%).

33. There were 4 fatalities from fire incidents in 2013, resulting from 2 residential fires (fire at Marine Crescent on 26 October 2013 and fire at Jalan Gaharu on 17 November 2013) and 1 industrial fire (shipyard fire at Jalan Samulun on 26 March 2013).

⁴ Smoke inhalation refers to injury due to inhalation of smoke or gaseous product of combustion into the respiratory system

⁵ Fire injuries refer to burns (including 1st degree, 2nd degree and 3rd degree) sustained from fire incidents.

1st degree burn is superficial burn that affects only the epidermis or superficial skin

2nd degree burn is partial thickness burn where the damage penetrates into some of the underlying layers of the skin and the skin is mottled, white to red and often blistered

3rd degree burn involves injury to all layers of the skin, the skin is dry, leathery and often white or charred